



# U.S. DEPARTMENT OF ENERGY

**SAVANNAH RIVER OPERATIONS OFFICE  
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**DOE'S SRNL AND DWPF HONORED BY WHITE HOUSE  
FOR ENVIRONMENTAL ACHIEVEMENT**

AIKEN, S.C. (June 17, 2009) – The U.S. Department of Energy's Savannah River National Laboratory (SRNL) and its Defense Waste Processing Facility (DWPF) at the Savannah River Site were honored by the White House for an innovative environmental initiative that reduces contaminated waste requiring disposal and eliminates the need for people to enter a high-radiation area of the waste processing facility.

The initiative – the development and deployment of a new remote gasket removal and replacement tool – earned the team an honorable mention in the annual White House Closing the Circle Awards, which recognize outstanding environmental stewardship at federal civilian and military facilities. This year, 15 winners and 13 honorable mentions were selected from nearly 200 nominations in the areas of environmental management systems, pollution prevention, recycling, green product purchasing, alternative fuels, electronics stewardship and sustainable buildings. SRS is one of only two DOE facilities to be recognized in this year's awards.

"This recognition affirms what we know about Savannah River Site personnel," says Jeffrey Allison, DOE Manager at SRS,. "They continue to use their ingenuity to find new ways to reduce their impact on the environment and enhance the safety of their fellow employees. Their active support of DOE's commitment to environmental excellence makes us proud."

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## **SRS AWARD 2-2-2-2**

The awards ceremony will be held last week (June 17), at the National Institutes of Health, in Bethesda, MD, to formally recognize the winning programs. A second ceremony will be held locally at SRS later this summer to recognize the team members: Greg Lawson, James Gee, Brian Metzger, Darryl Perry, Rickey Jackson, and Leonard Perry (of DWPF) and Dan Krementz, Jeff Coughlin, Bob Milling, and Mike Dalmaso (of SRNL).

The DWPF processes radioactive liquid waste stored at SRS into a stable glass form for long-term disposition. Whenever a gasket failed on one of the pipes or transfer lines in the facility – something that happens as often as 40 times in a year – the previous response was to decontaminate the connection as much as possible, then remove it and transport it to a special maintenance cell, where personnel wearing air-supplied protective plastic suits to prevent personal contamination would manually replace the gasket and snap ring. DWPF personnel recognized that the development of remote gasket replacement tooling as an alternative to this hands-on gasket replacement procedure would significantly reduce personnel risks, along with the waste and operational costs associated with the routine maintenance of canyon piping and transfer line connectors.

SRNL researchers, who has extensive experience developing and deploying remote tools for use in radioactive environments, were engaged to develop and test the multiple tools needed. They came up with pneumatic tools for removal of the snap ring and spent gasket, as well as a pneumatic tool to simultaneously install the new gasket and snap ring, and a pneumatic snap ring-loading tool that compresses a new snap ring and places it in a groove in the installation tool. All of these tools are located on a custom work table that can be moved around within the processing facility using existing cranes and manipulators. The table has a pneumatic valve station that directs compressed air to the appropriate tool. The entire table system is designed to be operated using manipulators to position and operate the various tools.

Now, instead of four people dressing out in plastic suits and entering a high contamination/airborne area, the task can be performed remotely by two people using the new tool from outside the cell.

This new approach significantly reduces the quantity of materials that in the past were used and disposed of with each replacement – items like plastic suits, hoses, hand tools. These items had resulted in about 11 cubic feet of low-level radioactive waste that had to be disposed of with every gasket replaced; obtaining these materials cost about \$5,000 per gasket replacement. With this approach, the assembly no longer needs to be decontaminated prior to replacement, a process that had generated approximately 2,000 gallons of contaminated wastewater per gasket.

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### **SRS AWARD 3-3-3-3**

Overall, the tool development and deployment is resulting in a savings estimated at \$220,000 per year.

Based on the success at DWPF, additional deployment opportunities will be investigated. A technical paper has been prepared to share this technology development with others.

*WSRC manages the liquid waste contract at SRS, including DWPF, for the U.S. Department of Energy. WSRC is a subsidiary of URS Corporation's Washington Division.*

*SRNL is DOE's applied research and development national laboratory at SRS. SRNL puts science to work to support DOE and the nation in the areas of environmental management, national and homeland security, and energy security. The management and operating contractor for SRS and SRNL is Savannah River Nuclear Solutions, LLC*

*For additional information on the Department of Energy's Office of Environmental Management and the Savannah River Site, can be found at <http://www.em.doe.gov> or <http://www.srs.gov>.*

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